

L 06165-67 EWT(1)/FSS-2 TT/GW

ACC NR: AP6032853

SOURCE CODE: UR/0020/66/170/003/0560/0560

AUTHOR: Vakhnin, V. M.; Zmiyevskaya, G.I.

ORG: none

TITLE: Stratified and faceted forms in panoramas obtained by the Luna-9 station

SOURCE: AN SSSR. Doklady, v. 170, no. 3, 1966, 560 and insert facing p. 560

TOPIC TAGS: LUNAR PHOTOGRAPHY, SPACE STATION,
lunar surface, moon, lunar study, lunar station/ Luna-9
SPACE STATION

ABSTRACT: The complicated structures of characteristic and repeated forms of the lunar surface on panoramic pictures obtained by the Soviet lunar station "Luna-9" are described. Among these are forms which can be characterized as complex polyhedrons consisting of small flat regions. In many places on photographs the boundary between the light and the shadow consists of straight lines cast by objects with straight and flat faces. The first figure in the text shows the blocked structure formed by polyhedrons. The second figure contains several stratified structures which are bordered by two parallel and nearly vertical faces of large dimensions. Both ends of these structures have an irregular shape, but in many cases show indented surfaces.

UDC: 550.2

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The strata were estimated to be 0.8--1.5 cm thick. The third figure shows a part of the first figure with a prominent rock having an indented surface and funnel-shaped pits. The other part of the fragment consists of rocks with indented surfaces and irregularly shaped sides. Based on the lunar photographs, it is concluded that the lunar surface consists of many stratified rocks. Orig. art. has: 3 figures.

SUB CODE: 03/ SUBM DATE: 14 Jun66/ ORIG REF: 001/ OTH REF: 000

Card 2/2 m f e

KEDROV, L.V.; KACHKO, I.L.; KOZLOVA, Z.V.; RUBASHKINA, T.S.;
SIMONOV, I.G.; LUPEKIN, L.A.; BORISOVA, N.V.; PETISOVA,
N.A.; VAYSBERG, I.Ye.; SUCHKOV, V.G.; KHRENNIKOV, N.S.;
FILATOV, M.F., red.; ZMIYEVSKAYA, L.G., red.

[Flexible footwear] Gibkaia obuv'. Moskva, 1962. 38 p.
(MIRA 17:8)

1. Tsentral'nyy institut nauchno-tekhnicheskoy informatsii
legkoy promyshlennosti.

NIKITIN, G.N., inzh.; ZMIYEVSKAYA, L.G., red.

[Hair removal from rabbit skins unsuitable for processing as fur peltry] Sniatie pukha so shkurok krolika, neprigodnykh dlia pererabotki na mezh. Moskva, 1964. 21 p.
(MIRA 18:4)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy informatsii legkoy promyshlennosti.

KARASIK, Z.S.; MALEVANNYY, A.I.; OKUN', B.D.; TRUSHIN, S.A.;
MURAV'YEVA, M.I., red.; ZMIYEVSKAYA, L.G., red.

[Modernization of technological equipment in shoe
factories] Modernizatsiia tekhnologicheskogo oborudovaniia
na obuvnykh predpriatiiakh. Moskva, 1962. 67 p.
(MIRA 17:5)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy in-
formatsii legkoy promyshlennosti.

PIMENOV, V.I., kand. tekhn. nauk; FILATOV, M.A., red.; ZMIYEVSKAYA,
L.G., red.; BRATISHKO, L.V., tekhn. red.

[Improving the cementing process of assembly in shoe
manufacture] Sovershenstvovanie kleevykh metodov krep-
leniya v obuvnom proizvodstve. Moskva, 1963. 52 p.

(MIRA 16:11)

1. Moscow. Tsentral'nyy institut nauchno-tekhnicheskoy
informatsii legkoy promyshlennosti.

(Shoe manufacture) (Adhesives)

ZMIYEVSKIY, I.A.; YEGOSHIN, Ye.A.

Some problems in the assembly of boiler units. Energ.stroi.
no.24:65-73 '61. (MIRA 15:4)

1. Starshiy proizvoditel' rabot montazhnogo uchastka tresta "Sevzapenergomontazh" (for Zmiyevskiy). 2. Nachal'nik Proizvodstvenno-tekhnicheskogo otdela montazhnogo uchastka tresta "Sevzapenergomontazh" (for Yegoshin).
(Narva region--Electric power plants--Design and construction)
(Boilers)

BABETSKIY, G.I. (Novosibirsk); EZZHANOVA, M.M. (Novosibirsk); VOLOSHIN, Yu.M.
(Novosibirsk); YERSHOV, A.P. (Novosibirsk); ZAGATSKIY, B.A.
(Novosibirsk); ZMIYEVSKAYA, L.L. (Novosibirsk); KOZEUKHIN, G.I.
(Novosibirsk); KOTCHUKHINA, S.K., (Novosibirsk); MISHKOVICH, R.D.
(Novosibirsk); MIKHALEVICH, Yu.I. (Novosibirsk); POTTOSIN, I.V.
(Novosibirsk); TROKHAN, L.K. (Novosibirsk)

The ALPHA system of automatic programming. Zhur. vych. mat. i mat.
fiz. 5 no.2:317-325 Mr-Ap '65. (MIRA 16:5)

72 MIYEVSKAYA, L. L.

I. 44598.65 E-T(4)/EED-2/EAP(1) Pt-4/Pg-4/Fk-4 LJP(c) EB/CG
 UR/0208/65/009/002/0317/0329
 ACCESSION NR: AP5009396

AUTHOR: Babetskiy, G. I. (Novosibirsk); Benhanova, M. M. (Novosibirsk);
 Voloshin, Yu. M. (Novosibirsk); Yerahov, A. P. (Novosibirsk); Zagutskiy, B. A. (Novosibirsk);
 (Novosibirsk); Zaiyevskaya, L. L. (Novosibirsk); Kozhukhin, G. P. (Novosibirsk);
 Kozhukhina, S. K. (Novosibirsk); Mikhkovich, R. D. (Novosibirsk); Mikhalevich,
 Yu. I. (Novosibirsk); Pottosin, I. V. (Novosibirsk); Trokhan, L. K. (Novosibirsk)

TITLE: AL'FA automatic programming system

SOURCE: Zhurnal vychislitel'noy matematiki i matematicheskoy fiziki, v. 5, no. 2,
 1965, 317-325

TOPIC TAGS: automatic computer programming, computer language, computer system,
 machine translation, computer/AL'FA computer programming, AL'FA computer,
 language, AL'FA computer system

ABSTRACT: This article presents a detailed description of the AL'FA Automatic
 Programming System which translates from an ALGOL type language.
 The AL'FA System was developed by a group of twelve scientists at the
 Computing Center of the Siberian Branch of the Academy of Sciences USSR
 and is intended for the electronic computer of the same computing center.

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ACCESSION NR: AP5009396

which has the following characteristics: three-address, floating-point, one index register, an immediate access memory of 4096 45-bit words, three magnetic drums with a total storage capacity of 12,288 words, four magnetic tape units with 75,000 words storage capacity each, punch card input and output, average speed 20,000 operations per second.

The AL' FA System consists of the following components: 1) AL' FA language, the input language in which the problems to be solved are programmed. This language is an extension of the ALGOL-60 language. 2) AL' FA translator, the translating program by means of which the program written in AL' FA language is translated into the computer program. It consists of 24 blocks with a total storage capacity of 45,000 words. The performance of particular blocks and translation procedure are described in detail, and 3) the AL' FA debugging program, which makes it possible to correct the AL' FA program without studying the computer program. The storage capacity of the AL' FA debugging program is approximately 2000 words.

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It is indicated that scientists were working on the development of the AL' FA System from 1959 to 1964 and that the estimated labor used amounts to 35 man-years. The AL' FA System has been in an experimental stage of operation since January 1964. Some operational data obtained in the first five months are presented and compared with the data on manual programming. Orig. art. has 2 tables.

ASSOCIATION: none

SUBMITTED: 05Oct64

ENCL: 00

SUB CODE: DP

NO REF SOV: Y008

OTHER: 002

ATD PRESS: 3244-P

Card 3/3

7MYPVSKIY, P.K.

Gas-turbine fuel for locomotives produced from the products of
retarded cooking. Vostochny i refleksion. no. 1:19-21 1963. (MIRA 13:6)

1. Volgogradskiy nauchno-issledovatel'skiy institut koks i gaza.

ZMIYEVSKIY, P.K.; MITROFANOV, M.G.

Catalytic cracking of heavy coker gas oils. Neftepar. i neftekhim.
no.6:3-5 '65. (MIRA 18:7)

1. Volgogradskiy nauchno-issledovatel'skiy institut nefti gaza.

ZMIYEVSKIY, P.K.; KLYUKANOVA, T.N.; KUSAKINA, G.M.

Investigating thermal-cracking and retarded coking gasolines
as raw stock for oxo-synthesis. Neft. i gaz. prom. no.4:

48-49 O-D '64

(MIRA 18:2)

ZAVIDOV, V.I.; ZMIYEVSKIY, P.K.; FEDOROVA, Z.V.; KHUR.L.I.; ATAMANKIN, A.I.

Obtaining extracts to be used as raw materials in the production of carbon black. Nefteper. i neftekhim, no. 6:24-26'63
(MIRA 17:7)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti i Volgogradskiy netrepererabatyvayushchiy zavod.

ZMIYEVSKIY, P.K.; DAL', V.I.; KUSAKINA, G.M.

Investigating the coking distillates from the refining residues
of Volgograd oils. Izv. vys. ucheb. zav.; neft' i gaz 7 no.3:
59-62 '64. (MIRA 17:6)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut.

ZMIYEVSKIY, P.K.

Purification equipment in the Volgograd Petroleum Refinery.
Izv.vys.ucheb.zav.; neft' i gaz . 7 no.4:60 '64. (MIRA 17:5)

ZMIYEVSKIY, P.K.; DAL', V.I.

Coking gas oils as a crude for catalytic cracking. Neftoper. i
neftekhim. no. 4:6-10 '64. (MIRA 17:5)

1. Volgogradskiy neftpererabatyvayushchiy zavod.

DAL', V.I.; ZMIYEVSKIY, P.K.; KOVALEV, I.P.

Heavy refining residues of Volgograd petroleum as raw materials
for the retarded coking process. Izv. vys. ucheb. zav.; neft' i
gaz 6 no.10:55-58 '63. (MIRA 17:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskii institut im. Dzerzhinskogo.

ZMIYEVSKY, P.K.; KUSAKINA, G.M.

Using a redesigned atmospheric-vacuum pipe still in the Volgograd
Petroleum Refinery. Neftianik 8 no.1:31-32 Ja '63. (NIRA 16:3)
(Volgograd-Distillation, Fractional)

ZMIYEVSKIY, P.K.

Problems of the atmospheric vacuum distillation of petroleum.
Neftaper. i neftekhim. no.8:4-7 '63 (MIRA 17:8)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i
gazovoy promyshlennosti.

ZMIYEVSKIY, P.E.; MARTYENKO, V.V.

Operation of a unit for retarded cooking. Neftaper. i neftekhim.
no.5:12-13 '64. (MIRA 17:8)

1. Volgogradskiy neftepererabatyvayushchiy zavod i Volgogradskiy nauchno-issledovatel'skiy institut nefti i gaza.

AP6027598 (A) NW/JW/WE

SOURCE CODE: UR/0318/66/000/007/0013/0016 15

AUTHOR: Mitrofanov, M. G.; Zmiyevskiy, P. K.; Podlipskiy, L. A.;
Ropyanaya, M. A.

ORG: Volgograd Petroleum and Gas Scientific Research Institute
(Volgogradskiy nauchno-issledovatel'skiy institut nefti i gaza)

TITLE: Removal of mercaptan sulfur from kerosene²

SOURCE: Neftepererabotka i neftekhimiya, no. 7, 1966, 13-16

TOPIC TAGS: kerosene, jet fuel, desulfurization, mercaptan

ABSTRACT: A new process has been developed which makes it possible to remove all mercaptan sulfur from kerosene fractions from both low-sulfur and medium-sulfur crudes. The process involves extraction with caustic soda in the presence of methanol; mercaptan sulfur in the treated kerosene does not exceed 0.0005—0.0006%, which is well up to world standards. It is noted that the high content of mercaptan sulfur (as high as 0.01—0.02% versus the 0.005% permitted by the GOST standard) is a very serious problem at many Soviet refineries. In fact, certain refineries have been forced to shut off their production of kerosene because of failure to meet specification as to mercaptan content. Hydrofining is not a practical solution since high capital cost,

UDC: 665.666-42-801.6-5-614-4

L 41075-66

ACC NR: AP6027598

shortage of hydrogen, and high cost of operation preclude its rapid and simultaneous introduction to a large number of plants. In contrast, the new process is simple and can be put on stream in a very short time, permitting kerosine production to be resumed at plants which lack hydrofining equipment and an adequate supply of hydrogen. The process has been proven on a laboratory scale and a flow sheet (given in original article) has been drawn up. [SM]

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 006/ ATD PRESS: 5056

Card 2/2

11b

KHAVKIN, T.N.; ZMOIRO, I.D.

Spontaneous infarction of the testes. Urologia 26 no.1:57-61 '61.

(TESTICLE—BLOOD SUPPLY)

(MIRA 14:3)

ZMOLIE, inz.

Standardization of electric medical apparatus. Slaboproudy
obzor 24 no.4:248-250 Ap '63.

ZMOLIK, A., inz.

The standard of magnetophone quality. Slaboprouty obzor
25 no.4:241-243 Ap '64.

FMOLIK, Antenn, Inc.

Regulations for wire broadcasting. Diaboproudy obzr: 25 no.61
370-371 Jo '64.

ZMOLIK, A., inz.

General Assembly of International Electrical Commission in Interlaken.
Slaboproudý obzor 22 no.12:771-773 D '61.

(International Electrical Commission)

ZMOLIK, A., *ins.*

Meeting of the International Electrotechnical Commission,
Subcommission on Safety of radio receivers. Slabopreudy obzor
23 no.1:60 Ja '62.

ZMOLIK, Antonin, inz.

International organizations cooperating with the International
Electrotechnical Commission. Normalizace 12 no. 4: 98-99
Ap '64.

1. Office of Standardization and Measurement, Prague.

ZMOLIK, A., inz.

Protection of telecommunication and safeguard equipment against
overvoltage and excess current. Slaboproudly obzor 25 no.3:172-
173 Mr '64.

ZMORA, W.

"New principles of granting credit to cooperative societies."

p. 8 (Rolnik Spoldzielca) Vol. 10, no. 5, Feb. 1958
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,
April 1958

ZMOLIK, A., inz.

Magnetic sound recording. Slaboproudy obzor 24 no.6:374-375
Je '63.

ZMOLIK, Antonin, inz.

List of publications of the International Electrotechnical
Commission up to the end of 1962. Normalizace 11 no.5:
153-155 My '63.

ZMOLIK, A.

ZMOLIK, A. Standardization of telecommunication apparatus. p. 35.

Vol. 6, no. 2, Feb. 1957
NORMALISACE
TECHNOLOGY
Czechoslovakia

So: East European Accession, Vol. 6, No. 5, May 1957

ZMOLIK, Antonin, inz.

Publications of the International Electrotechnical Commission
in 1963. Normalizace 12 no.7:196-197 JI'64

1. Office of Standardization and Measurement, Prague.

ZMOLIK, Antonin, inz.

Climatotechnology nomenclature. Normalizace 12 no.8:235 Ag '64

1. Office of Standardization and Measurement, Prague.

ZMOLIK, A., inz.

Electrotechnical regulations for antennas. Slaboproudy obzor
24 no.11:680-681 N'63.

Z/039/60/021/01/025/040

E073/E135
(Engineers)

AUTHORS: Jan Musil and A. Žmolík
TITLE: General IEC Meeting in Madrid

PERIODICAL: Slaboproudý Obzor, 1960, Vol 21, Nr 1, pp 57-59

ABSTRACT: Report on this meeting, which was held between June 30 and July 10, 1959. The work of the following sub-commissions is reported on:

Sub-commission 18-3, Interference in ships' radio communications.

Sub-commission 39-1, Electron tubes.

Sub-commission 39-2, Semiconductor elements.

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ZMOLIK, Antonin, inz.

Czechoslovak standard 36 7303; the quality of radio receivers.
Slaboproudý obzor 23 no.10:604-606 0 '62.

ZMOLIK, A.

"New international recommendation of the International Electrotechnical Commission." P. 335.

SLABOPROUDY OBZOR. (Ministerstvo presneho strojirenstvi, Ministerstvo spoju a Vedecka technicka spolecnost pro elektrotechniku pri CSAV). Praha, Czechoslovakia, Vol. 20, No. 5, May 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, No. 8,
August 1959.
Uncla.

ZMOLIK, A., inz.

Nomenclature of semiconductors. Slaboproudy obzor 25 no.10:
622 0 '64.

ZMORAY, I.

MILITARY & NAVAL SCIENCES: GENERAL

Periodical NASA VEDA. Vol. 5, no. 10, Oct. 1958.

ZMORAY, I. A national scientific seminar on the fascioliasis of domestic animals. p. 459.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March, 1959. Uncl.

ZMORAY, I.

"Application of Michurin's theses in Helminthology."

VESTNIK. Praha, Czechoslovakia, Vol. 5, No. 7/8, 1958.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959.

Unclassified.

ZMORAY, I.

From the history, on results and future prospects of the
Helminthological Institute of the Slovakian Academy of
Sciences in Kosice. Biologia 19 no.2:130-135 '64.

*

SMOBY, I.

The Darwin theory of the "fight for life" in the light of Lysenko's doctrine.
p. 113.

SO: East European Accessions List, Vol. 3, No. 9, Sept. 1954, Lib. of Congress.

ZMORAY, I.

"The Darwin Theory of the "Fight for Life" in the Light of Lysenko's Doctrine." p. 113,
Bratislava, Vol. 6, 1951.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

ZMORAY, Ivan

First Coordination Conference of Czechoslovak Helminthologists.
Vestnik CSAV 72 no.1:93-94 '63.

PARASITOLOGY

CZECHOSLOVAKIA

ZMORAY, Ivan; Helminthological Institute of the Slovak Academy of Sciences, Kosice. [Original version not given].

"On the Problems of the Ecological Understanding of Parasite Specificity."

Bratislava, Biologia, Vol 21, No 4, 1966, pp 241 - 245

Abstract [Author's English summary modified]: The generally accepted definitions of parasite specificity are discussed. A basic concept of specificity is presented by the author and mathematical equations expressing this concept are presented. The only specific relationship is that between the host and the parasite. The number of specificities should be reduced so that ecological designation could be narrowed down more precisely. No references. Original article is in German. (Manuscript received 6 Dec 65).

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CZECHOSLOVAKIA
ZMORAY, Ivan; LESTAN, Pavol; Helminthological Institute, Slovak Academy of Sciences (Helmintologicky Ustav Slovenskej Akademie Vied), Kosice.

"Catalase Activity in Sexually Adult Females of Ascaris Suum."

Bratislava, Biologia, Vol 21, No 10, 1966, pp 749 - 754

Abstract: The catalase activity of the females of Ascaris suum varies to a great extent. The variation is probably due to the age of the helminth. When the material was homogeneous, as far as age is concerned, the activity was a function of body weight. 3 Tables, 2 Western, 1 Czech, 3 Russian references. (Manuscript received 27 Jun 66).

1/1

ZHOROVICH, V.A.

Generalization of the second Abelian theorem in the theory of power
series. *Dokl. Akad. Nauk. Ukr. SSR* 9:129-133 '50. (MIRA 9:10)
(Series)

Z MOROVICH, V. A.

Mathematical Reviews
Vol. 15 No. 3
March 1954
Analysis

7-9-74

Zmorovič, V. A. On the structure formulas of some classes of univalent functions. Doklady Akad. Nauk SSSR (N.S.) 72, 833-836 (1950). (Russian)

The author announces a number of theorems on the class of functions $F(z) = z + \dots$ regular in $|z| < 1$ for which (1) $\Re \sigma^{-\alpha} F'(z) > 0$ or (2) $\Re \sigma^{-\alpha} F'(z)/F(z) > 0$. A generalization to the case $|F(z)| \leq M$ is indicated.

A. IV. Goodman (Lexington, Ky.).

ZMOROVICH, Y.A.

Certain variational problems in the theory of one-sheeted functions. Ukr.mat.
zhur. 4 no.3:276-298 '52. (MIRA 6:10)
(Functional analysis)

ZMOROVICH, V. A.

Zmorovic, V. A. On a criterion of N. I. Lobačevskii for the convergence of positive numerical series and a generalization of this criterion. *Uspehi Matem. Nauk (N.S.)* 7, no. 1(47), 162-170 (1952). (Russian)

The author gives an elementary discussion and simple modifications of the following theorem published by Lobačevskii [*Učenyje Zapiski Imp. Kazan. Univ.* 1834, Kn. II, 167-226]. Let $\sum_{n=1}^{\infty} u_n$ be a series of positive terms for which $u_{n+1} < u_n$ and $u_n \rightarrow 0$. Let k be a positive integer. Then $\sum u_n$ converges if and only if $\sum p_n 2^{-n}$ converges when the integers p_n are determined by the conditions: $U_{p_{n+1}} < 2^{-n} u_n \leq U_{p_n}$, $n = 1, 2, 3, \dots$.
R. P. Agnew (Ithaca, N. Y.).

30: MATHEMATICAL REVIEW (unclassified)
vol XIV, No 3, pp233-240 March 1953

ZHOROVICH, V.A.

Certain problems in the theory of univalent functions. Nauk.zap.Kiev.un.
(MLRA 9:10)

11 no.7:83-94 '52.

(Functions, Analytic)

Z MOROVICH, V. A.

Mathematical Reviews
Vol. 15 No. 3
March 1954
Analysis

7-9-54
LL

Zmorovich, V. A. On structure formulas of certain classes of analytic functions univalent in a circular ring. Doklady Akad. Nauk SSSR (N.S.) 86, 465-468 (1952). (Russian)

Single-valued analytic functions $f(z)$, are considered in the annulus $q < |z| < 1$. Such a function is called normed if $\oint f dz/z = 2\pi i$, the integral being extended over $|z| = \rho$, $q < \rho < 1$. Theorem 1 gives a Stieltjes integral representation of normed functions with positive real parts. The formula, generalizing the classical Herglotz representation, reads

$$f(z) = \frac{1}{2\pi} \int_{-\pi}^{\pi} F(e^{i\theta}) d\mu_1(\theta) + \frac{1}{2\pi} \int_{-\pi}^{\pi} F\left(\frac{q}{z}\right) d\mu_2(\theta) - 1.$$

Here μ_1, μ_2 are non-decreasing real-valued functions and

$$F(z) = -\frac{i}{\pi} \left(\frac{\log z}{2\pi i} \right) = \frac{1+z}{1-z} + 2 \sum_{n=1}^{\infty} \frac{q^{n\alpha}}{1-q^{2n}} (z^n - z^{-n}).$$

Using Theorem 1 the author finds integral representations for functions $f(z)$ satisfying the following conditions: $f(z)$ is univalent and maps circles $|z| = \rho$ onto star-shaped curves (Th. 2), $\operatorname{Re} e^{i\alpha} f'(z)z/f(z) > 0$ for some real α (Th. 3), $f(z)$ maps circles $|z| = \rho$ into convex curves (Th. 4), $f(z)$ has a simple pole in the annulus and maps the annulus in a one-to-one way onto the complement of two convex bodies (Th. 6). [For similar results in the case of a disc, cf. the paper reviewed above.] L. Bers (New York, N. Y.).

ZMOROVICH, V. A.

Mathematical Reviews
Vol. 14 No. 11
Dec. 1953
Analysis

Zmorovic, V. A. On some classes of analytic functions univalent in a circular ring. Mat. Sbornik N.S. 32(74), 633-652 (1953). (Russian)

Let $f(z)$ be regular in a ring $K: 0 < q < |z| < 1$, and normalized by the condition that $\int f(z) z^{-1} dz = 2\pi i$ on $q < r = |z| < 1$. It is proved that a necessary and sufficient condition that $\Re(f(z)) > 0$ in K is that

$$f(z) = \frac{1}{2\pi} \int_{-\pi}^{\pi} F(se^{-i\theta}) d\mu_1(\theta) + \frac{1}{2\pi} \int_{-\pi}^{\pi} F\left(\frac{q}{se^{-i\theta}}\right) d\mu_2(\theta) - 1,$$

where

$$F(s) = \frac{1+s}{1-s} + 2 \sum_{k=1}^{\infty} \frac{q^k}{1-q^{2k}} (s^k - s^{-k}),$$

and $\mu_j(\theta)$, $j=1, 2$, is a nondecreasing function on $[\pi, -\pi]$ for which $\mu_j(-\pi+0) = \mu_j(-\pi) = 0$ and $\mu_j(\pi) = 2\pi$.

This theorem contains a variety of previously known results as special cases. Application is made to obtain formulas for functions which are regular and univalent in K and (a) convex, (b) starlike, and also for functions meromorphic and univalent in K .

A. W. Goodman.

⁰
ZMORVICH, V.A.

Bounded relativistic problem of two bodies. Ukr. nat. zhur. 6 no. 1: 109-113
(Problem of two bodies) (MLRA 9:1)

154.

ZMOROVICH, V.A.

Certain special classes of analytical functions one-sheeted in
the circle. Usp.mat.nauk 9 no.4:175-182 '54. (MIRA 8:1)
(Functions, Analytic)

ZMOROVICH, V.A.

SUBJECT
AUTHOR
TITLE
PERIODICAL

USSR/MATHEMATICS/Theory of functions
ZMOROVICH V.A.
On the limits of the roots of algebraic polynomials.
Uspechi mat.Nauk 11, 5, 179-183 (1956)
reviewed 1/1957

CARD 1/3 PG - 500

Let be given the algebraic polynomial

$$(1) \quad P(z) = \sum_{v=0}^n a_v z^v \quad (a_0 \neq 0, a_n \neq 0)$$

with real or complex coefficients. Then the following theorems are valid:

$$1. \text{ For } n \geq 2 \text{ be } R = \max_{k=0}^{n-1} \left\{ \left| \frac{a_k}{a_n} \right|^{\frac{1}{n-k}} \right\} \quad \text{and } R_0 = \max_{k=1}^n \left\{ \left| \frac{a_k}{a_0} \right|^{\frac{1}{k}} \right\}.$$

Then all zeros of (1) lie in the ring

$$(2) \quad \frac{x}{R_0} \leq |z| \leq \frac{R}{x}$$

where x is the single positive root of $x^{n+1} - 2x + 1 = 0$ being different from 1.
This root satisfies the inequation

Uspechi mat.Nauk 11, 5, 179-183 (1956)

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PG - 500

$$\frac{1}{2} + \frac{1}{2^{n+2}} < x < \frac{1}{2} + \frac{1}{2^{n+1}}.$$

The limits of (2) are exact: The lower one reaches the polynomial $\sum_{k=0}^{n-1} (R_0 z)^{n-k-1}$ and the upper one reaches the polynomial $z^n - \sum_{k=1}^n R_k z^{n-k}$.

2. If $R \geq \max \left\{ \left| \frac{a_{n-k}}{a_n} \right|^{\frac{1}{k}} \right\}_{k=1}^{k=n}$, then

$$n\left(\frac{R}{k}\right) \leq \frac{\ln \left[(n+1) \left| \frac{a_n}{a_0} \right| R^n \right]}{\ln k},$$

where $k > 1$ and $n\left(\frac{R}{k}\right)$ is the number of zeros of (1) in the circle $|z| \leq \frac{R}{k}$.

3. Let $\left| \frac{a_k}{a_0} \right| = \sigma_k$ ($k=1, 2, \dots, n$). Outside of the circle

$$|z| \leq (1 + \sigma_1 + \dots + \sigma_n)^{-\frac{1}{n-k}} \quad (k=1, 2, \dots, n-1)$$

Uspechi mat.Nauk 11, 5, 179-183 (1956)

APPROVED FOR RELEASE: 03/15/2001

CIA-RDP86-00513R002065320004-9

there lie at least k zeros of (1).

4. Let $Q(z) = 1 + b_1 z + b_2 z^2 + \dots + b_n z^n$ and $1 + |b_1| + \dots + |b_n| = A$. Let $S(A, n)$ denote the class of polynomials $Q(z)$ for fixed n and A . Let $r_k(A, n)$ be the exact upper bound of those numbers $r_k > 0$ for which in the circle $|z| \leq r_k$ there lie not more than $n-k$ zeros of each polynomial of the class $S(A, n)$. For a polynomial of the class $S(A, n)$ holds:

$$r_1(A, n) = (A-1)^{-\frac{1}{n}}.$$

With a corresponding restriction, from these theorems one obtains the results of S.K. Singh (Proc. Nat. Inst. Sci. India 19, 5, 601-603 (1953)).

ZKOROVICH, V.A. (Kiyev).

Certain classes of analytical functions in a circular ring. Mat.
abor. 40 no.2:225-238 0 '56. (MIRA 9:12)
(Functions, Analytic)

ZMOBOVICH, V.A.

Limits to roots of algebraic polynomials. Usp.mat.nauk 11 no.5:179-
183 S-O '56. (MLBA 10:2)
(Polynomials)

ENCL. 1, V.A. (1975)

1. List of witnesses provided relates to regular contact with
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(MIRA 2318)

MITROPOL'SKIY, Yu.A., otv. red.; BEREZANSKIY, Yu.M., red.; BREUS,
K.A., red.; ZMOROVICH, V.A., red.; LYASHKO, I.I., red.;
MARCHEENKO, V.A., red.; PARASYUK, O.S., red.; POLOZHIIY,
G.N., red.; FIL'CHAKOV, P.F., red.; KULAKOVSKAYA, N.S.,
red.

[Mathematical physics] Matematicheskaya fizika. Kiev,
Naukova dumka, 1965. 156 p. (MIRA 18:8)

1. Akademiya nauk URSR, Kiev.

ZMOROVICH, V.A. [Zmorovych, V.A.]

On certain theorems in the theory of extremum estimates in
special classes of analytic functions. Dop. AN URSS no.8:
980-984 '65. (MIRA 18:8)

1. Kiyevskiy politekhnicheskii institut.

ZMOROVICH, V.A.

One of Mathieu's inequalities. Izv.vys.ucheb.zav.; mat. no.1:
123-124 '60. (MIRA 13:6)

1. Kiyevskiy politekhnicheskiy institut.
(Inequalities)

ZMOROVICH, V.A.

Distribution of roots of algebraic polynomials. Izv. vys. ucheb.
zav.: mat. no.4:56-63 '59. (MIRA 12:11)

1.Kiyevskiy politekhnicheskij institut.
(Polynomials)

16(1)
AUTHOR:

Zmorovich, V.A.

TITLE:

On the Theory of the Distribution of Zeros of Algebraic Polynomials

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Matematika, 1959, Nr 4, pp 56 - 63 (USSR)

ABSTRACT:

Let

$$(1.1) \quad P_n(z) = \sum_{\nu=0}^n a_{\nu} z^{\nu}, \quad n \geq 2, \quad a_0 \neq 0, \quad a_n \neq 0, \quad a_{\nu} \text{ complex.}$$

Let denote :

$$\alpha_{\nu} = \left| \frac{a_{\nu}}{a_n} \right| \quad (\nu = 0, 1, \dots, n-1), \quad \sigma_{\nu} = \left| \frac{a_{\nu}}{a_0} \right| \quad (\nu = 1, 2, \dots, n)$$

10 theorems of Singh [Ref 1], Dan Sun-shi [Ref 3] and Rahman [Ref 2] are once more formulated and compared. The author generalises results of Parodi [Ref 5, 6]. Theorem 11:

In the domain $|z| > r_{\lambda} = (1 + \sigma_1 + \dots + \sigma_n)^{-1/\lambda}$ where

Card 1/3

On the Theory of the Distribution of Zeros of
Algebraic Polynomials

SOV/140-59-4-8/25

$\lambda = \frac{n-1}{s}$, $s > 1$ and integer, (1.1) possesses at least

$$n - \left[\frac{n-1}{s} \right] = \left[\frac{s-1}{s} n + 1 \right]$$

zeros.

Theorem 13 : If (1.1) satisfies the condition

$$\alpha_{n-p} > 1 + \sum_{k=1}^{n-1} \alpha_k \quad (k \neq n-p, \quad p = 2, 3, \dots, n)$$

then p zeros of (1.1) lie in the ring

$$|z| < \frac{1}{2} (\sigma' + \sqrt{\sigma'^2 + 4\alpha}),$$

$$\text{where } \alpha = \left| \frac{a_{n-p}}{a_n} \right| \quad \text{and} \quad \sigma' = \sum_{k=0}^{n-1} \alpha_k \quad (k \neq n-p)$$

Card 2/3

On the Theory of the Distribution of Zeros of Algebraic Polynomials

SOV/140-59-4-8/26

Theorem 14 : If $a_{n-k} = 0$ ($k=1, 2, \dots, p-1$) and $\alpha_{n-p} > 1 + \sum_{k=0}^{n-p-1} \alpha_k$, then each of the p zeros of (1.1) in $|z| > 1$

lie in one of the p domains:

$$|z(z^p + \frac{a_{n-p}}{a_n})| \leq \sigma = \sum_{k=0}^{n-p-1} \alpha_k$$

There are 6 references, 1 of which is Soviet, 1 Chinese, 2 Indian, and 2 French.

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiyev Polytechnic Institute)
SUBMITTED: May 12, 1958

Card 3/3

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SOV/44-59-1-310

Translation from : Referativnyy zhurnal, Matematika, 1959, Nr 1, p 58 (USSR)

AUTHOR: Zmorovich, V.A.

TITLE: On Generalized Analytic Functions \\

PERIODICAL: Izv.Kiyevsk.politekhn.in-ta, 1956, 19, 3 - 65

ABSTRACT: The author represents the foundations of an algorithmic theory of the functions $f(z) = u + iv$ ($z = x + iy$) which are defined by the elliptic system of equations

$$u_x = a(x,y)v_x + b(x,y)v_y,$$

$$u_y = c(x,y)v_x + d(x,y)v_y.$$

Differentiation and integration are constructed in the class of these functions (for more details see Referativnyy zhurnal. Matematika, 1957, 1367).

G.N. Polozhiy

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Card 1/1

16(1)

AUTHOR: Zmorovich, V.A.

SOV/42-14-4-13/27

TITLE: On the Theory of Special Classes of Schlicht Functions.II

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14, Nr 4, pp 169-172 (USSR)

ABSTRACT: The present paper is a direct continuation of [Ref 1]. The author introduces two classes of functions schlicht and regular in the unit circle $|z| < 1$ containing as very special subclasses the classes treated by Tchakaloff [Ref 2] and Thale [Ref 3]. It is stated that all these classes belong to the "almost convex" functions of Ozaki [Ref 4]. Finally it is proved:
Theorem: If $f(z)$ is regular and convex in $|z| < 1$; λ, μ, C are complex numbers, $\mu \neq 0$, $|\arg \frac{\lambda}{\mu}| < \frac{\pi}{2}$, then $F(z) = \lambda f(z) + \mu z f'(z) + C$ is "almost convex" in $|z| < 1$.
The author mentions L.Ye.Dunduchenko, and B.N.Rakhmanov.
There are 6 references, 2 of which are Soviet, 1 American, 1 French, 1 Roumanian, and 1 Japanese.

Card 1/1

16(1)

AUTHOR: Zmorovich, V.A.

SOV/42-14-3-8/22

TITLE: On the Theory of Special Classes of Schlicht Functions I

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol. 14, Nr 3,
pp 137 - 144 (USSR)

ABSTRACT: The author considers certain special classes of schlicht functions, to which there belong in particular the functions convex in a given direction introduced by Robertson [Ref 1] and some function classes of B.N. Rakhmanov [Ref 2]. It is shown that all these classes are subclasses of the class K_0 of the almost convex functions of Ozaki [Ref 3]. The author proves a general theorem on schlicht functions in schlicht domains with an arbitrary connectivity. The theorem on almost convex functions of Ozaki and a theorem of Rogozhin [Ref 4] are obtained as conclusions. Altogether there are three theorems and several conclusions. - There are 5 references, 3 of which are Soviet, 1 American, and 1 Japanese.

SUBMITTED: November 19, 1956

Card 1/1

ZMOROVICH, V.A. [Zmorovych, V.A.]

One formula of the theory of multiple integrals [with summary in English]. Dop.AN URSR no.12:1281-1283 '58. (MIRA 12:1)

1. Kiyevskiy politekhnicheskii institut. Predstavil akademik AN USSR B.V.Gnadenko [B.V.Hnadenko].
(Integrals, Multiple)

ZMOROVICH, V.A. [Zmorovych, V.A.]

On the theory of special classes of univalent functions. Dop. AN USSR
no.1:5-9 '59. (MIRA 12:3)

1. Kiyevskiy politekhnicheskoy institut. Predstavil akademik AN USSR
B.V. Gnadenko [B.V. Hniedenko].
(Functional analysis)

AUTHOR: Zmorovich, V.A.

SOV/140-58-2-10/20

TITLE: On Some Marks of Convergence and Divergence for Series of Positive Numbers (O nekotorykh priznakakh skhodimosti i pas-khodimosti znakopolozhitel'nykh chislovykh ryadov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy Ministerstva vysshego obrazovaniya SSSR, Matematika, 1958, Nr 2, pp 106-117 (USSR)

ABSTRACT: Let $\{p_k\}$ be a sequence of positive numbers, $p_1 \geq 1$, $p_k < p_{k+1}$,

$\lim_{k \rightarrow \infty} p_k = \infty$. Let the function $f(x)$ be positive, continuous and monotonely decreasing on $[1, \infty]$, $\lim_{x \rightarrow \infty} f(x) = 0$.

Theorem: In order that the series

$$(1) \sum_1^{\infty} f(k) \quad \text{and} \quad (2) \sum_1^{\infty} (p_{k+1} - p_k) f(p_k)$$

converge or diverge at the same time it is necessary and sufficient that

$$(3) \quad \overline{\lim}_{k \rightarrow \infty} \frac{p_{k+1}}{p_k} < \infty.$$

Card 1/2 Theorem: Let $f(x)$ be continuous and not negative for $x \geq 1$,

On Some Marks of Convergence and Divergence for Series of Positive Numbers SOV/140-58-2-10/20

Var $\{f(x)\}_t^{\infty} \leq \varphi(t)$, $t \geq 1$, where $\varphi(t)$ is a not increasing, not negative function on $[1, \infty]$, where $\sum_{k=1}^{\infty} \varphi(k)$ converges. Let

the sequence $\{p_k\}$ be as above and let it satisfy (3). Then (1) and (2) converge or diverge at the same time.

Three further theorems with conclusions give improvements of older results of Bugayev [Ref 2] and the proof of the necessity of certain sufficient convergence conditions conjectured by the author [Ref 6].

There are 8 references, 5 of which are Soviet, 1 French, 1 Indian, and 1 German.

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev Polytechnical Institute distinguished by the Lenin Order)

SUBMITTED: November 15, 1957

Card 2/2

ZMOROVICH, V.A., [Zmorovych, V.A.]

Theory of convergence of positive number series. Dop. AN USSR
no.8:805-809 '58. (MIRA 11:10)

1.Kiyevskiy politekhnicheskii institut. Predstavil akademik
AN USSR B.V. Gnedenko [B.V. Hniedenko].
(Series) (Convergence)

16(1)

SOV/21-59-1-2/26

AUTHOR: Zmorovich, V.A.

TITLE: ~~On the Theory of Special Classes of Unifoliate Functions~~
(K teorii spetsial'nykh klassov odnolistnykh funktsiy)

PERIODICAL: Dopovidi Akademii nauk Ukrain's'koi RSR, Nr 1, 1959,
pp 5-9 (USSR)

ABSTRACT: This article establishes a few structural formulae of some classes of unifoliate holomorphic functions in a circle $|z| < 1$ of analytic functions, upon which, some of the formulas of L.Tchakaloff [1], Thale [2] and others are based. It also establishes a structural formula for classes L_a^2 , L_a^2 of B.N. Rakhmanov. Four theorems are examined and proved true. In the process of calculation, the regular function in circle $|z| < 1$, which makes possible identification of the convex function $\varphi(z)$ in that circle, and real number γ , is designated K . Convex functions in circle $|z| < 1$ are called functions of class S . Every stable function on segment

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On the Theory of Special Classes of Unifoliate Functions.

$[a; \beta]$ is called a function of class M , with a limited variation on that segment, and of class M_h , when it has a variation h . $F(z; \theta)$ stands for continuous function of arguments z and θ when $z \leq p$ and $0 \leq \theta \leq 2\pi$, at $p < 1$ and is arbitrarily close to 1. Other designations are standard mathematical. There are 7 references, 3 of which are Soviet, 3 English and one Japanese.

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiyev Polytechnical Institute).

PRESENTED: July 14, 1958, by B.V. Gnedenko, Member of the AS UkrSSR.

Card 2/2

16(1)

SOV/21-59-4-2/27

AUTHOR: Zmorovich, V.A.

TITLE: On the Boundaries of Curvature Fluctuation of a Plane Curve Image in Unifoliate Conformal Mapping

PERIODICAL: Dopevidi Akademii nauk Ukrain's'koj RSR, 1959, Nr 4, pp 351-354 (USSR)

ABSTRACT: Furthering the works by L. Takakal'f /Ref 1, 7/ and L.Ye. Dundushenko /Ref 2, 7/, the author examines general problems of distortion of curvature in a plane curve in unifoliate conformal mapping. The principal aim of this article is to attract attention of mathematicians to investigation of a new series of possible extreme problems of the theory of unifoliate functions. General estimations (13) and (15) are established for fluctuations of the curvature on a multitude of possible directions of the tangent of the

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50V/21-59-4-2/27

On the Boundaries of Curvature Fluctuations of a Plane Curve
Image in Unifoliate Conformal Mapping

initial curve. Two examples are considered. Designations are standard mathematical. There are 2 Soviet references.

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiyev Polytechnical Institute)

PRESENTED: By B.V. Gnedenko, Member of the AS UkrSSR

SUBMITTED: December 7, 1958

Card 2/2

AUTHOR: Zmorovich, V.A.

21-58-5-5/28

TITLE: On Generalization of Schwarz's Integral Formula on n-Connected Circular Domains (Ob obobshohenii integral'noy formuly Shvar-tsa na n-svyaznyye krugovyye oblasti)

PERIODICAL: Dopovidi Akademii nauk Ukrainy'koi RSR, 1958, Nr 5, pp 489-492 (USSR)

ABSTRACT: The author finds another form other than Meschkowski's formula for the generalization of Schwarz's formula, which is more convenient for various applications. It looks as follows:

$$f(z) = \frac{1}{2\pi} \sum_{j=1}^n \int_0^{2\pi} u_j(\theta) F_j(z; \zeta_j) d\theta - \alpha + i\beta$$

where α and β are real constants and $\alpha = \alpha_k$ ($k = 1, 2, \dots, n$). This formula is a generalization of the Schwarz integral formula on n-connected circular domains, which reduces to the former at $n = 1$. If the boundary of an n-connected domain consists of ordinary closed analytical curves, the formula of the author can be extended to this case by means of a certain auxiliary conformal mapping. Making use of his formula the author establishes the structural formulas for three

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21-58-5-5/28

On Generalization of Schwarz's Integral Formula on n-Connected Circular Domains

important classes of single-valued regular functions in n-connected circular domains, which was not possible to accomplish with the aid of Meschkowski's formula [Ref 1]. There are 5 references, 2 of which are Soviet, 1 German and 2 Finnish.

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiyev Polytechnic Institute)

PRESENTED: By Member of the AS UkrSSR, B.V. Gnedenko

SUBMITTED: October 10, 1957

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Integral functions--Theory

Card 2/2

ZMOROVICH, V.A. [Zmorovych, V.A.]

Generalization of Schwartz' integral formula on n -connected circular domains [with summary in English]. *Dop. AN URSR* no. 5:489-492 '58.
(MIRA 11:6)

1. Kiyevskiy politekhnicheskij institut. Predstavleno akademikom
B.V. Gnedenko [B.V. Hnidenko].
(Functions)

21-58-7-3/27

AUTHOR: Zmorovich, V.A.

TITLE: On a Generalization of Poisson's Integral Formula for
n-Connected Circular Domains (Ob obobshchenii integral'noy
formuly Puassona na n-svyaznyye krugovyye oblasti)

PERIODICAL: Dopovidi Akademii nauk Ukrains'koi RSR, 1958, Nr 7,
pp 698-701 (USSR)

ABSTRACT: The author considers a unifoliate n-connected domain K_n
whose boundary consists of n-circumferences of Γ_j -circles
described by the equations:

$$\zeta_j = a_j + R_j e^{i\theta} \quad (j = 1, 2, \dots, n; \quad 0 \leq \theta \leq 2\pi).$$

He looks for a formula which can define every regular in
 K_n and continuous in \bar{K}_n harmonic function in the points of
the circumferences of Γ_j in a form more convenient than
those of Meschkowski (Ref. 1) and Sekki (Ref. 2). The new-
ly found representation looks as follows:

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On a Generalization of Poisson's Integral Formula for n-Connected Circular Domains

$$u(z) = \frac{1}{2\pi} \sum_{k=1}^n \int_0^{2\pi} u_k(\theta) \operatorname{Re} F_k(z; \xi_k) d\theta - \sum_{k=1}^n \frac{\lambda_k}{\ln q_k} \ell_n |G_k(z)|,$$

where $F_k(z; \xi_k)$ ($k = 1, 2, \dots, n$) are unfoliate in K_n functions introduced by the author (Ref. 3), and

$$\lambda = \frac{1}{2\pi} \sum_{j=1}^n \int_0^{2\pi} u_j(\theta) \ell_{j,K}(\theta) d\theta$$

This is a generalization of the Poisson integral formula for n-connected unfoliate circular domains. Employing this formula, the author proves some general theorems about the integral representations of various classes of analytical and harmonic functions in n-connected circular domains. In particular, a generalized Poisson - Jensen formula is established for n-connected circular domains. There are 3 references, 1 of which is Soviet and 2 Finnish.

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On a Generalization of Poisson's Integral Formula for n -Connected Circular Domains 21-58-7-5/27

ASSOCIATION: Kiyevskiy politekhnicheskij institut (Kiyev Polytechnical Institute)

PRESENTED: By Member of the AS UkrSSR, B.V. Gnedenko

SUBMITTED: February 18, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Poisson integrals---Applications 2. Harmonic functions
---Applications 3. Analytic functions---Applications

Card 3/3

SOV-21-58-8-1/27

AUTHOR: Zmorovich, V.A.

TITLE: On the Theory of Convergence of Positive Numerical Series
(K teorii skhodimosti znakopozhivel'nykh chislovykh ryadov)

PERIODICAL: Dopovidi Akademii nauk Ukrain's'koi RSR, 1958, Nr 8, pp 805-809
(USSR)

ABSTRACT: The author proves four theorems to be used in testing for convergence or divergence of positive numerical series. He shows that in certain cases they can be reduced to the theorems formulated by N.I. Lobachevskiy, V.P. Yermakov, A. Cauchy, O. Schloemilch and N.V. Bugayev. However, a theorem of the latter (Ref. 10) was found to be incorrect, and some conclusions based by Yermakov (Ref. 4) on this theorem are therefore unfounded. In the author's opinion, the theorems proved are of interest from the viewpoint of the general theory of convergence and divergence of numerical series, due to a certain completeness of the results contained in them. There are 13 references, 10 of which are Soviet, 1 French, 1 German and 1 English.

ASSOCIATION: Kiyevskiy politekhnicheskii institut (Kiyev Polytechnical Institute)
Card 1/2

On the Theory of Convergence of Positive Numerical Series SOV-21-58-8-1/27

PRESENTED: By Member of the AS UkrSSR, B.V. Gnedenko

SUBMITTED: March 6, 1958

NOTE: Russian title and Russian names of individuals and institutions appearing in this article have been used in the transliteration.

1. Mathematics--Theory

Card 2/2

ZMOROVICH, V.A.

Convergence of positive-sign series. Izv. vys. ucheb. zav.; mat.
no.1:60-79 '58. (MIRA 11:5)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Series)

ZMOROVICH, V.A., prof.

"Harmonic synthesis in radio engineering and telecommunications"
by A.M. Zasednyi. Reviewed by V.A. Zmorovich, Izv. vys. ucheb.
zav.; radiotekh. no.2:259-260 Mr-Apr '58. (MIRA 11:5)
(Radio) (Telecommunication) (Zasednyi, A.M.)

ZKOROVICH, V.A.

Certain symptoms of convergence and divergence in positive-sign
number series. Izv. vys. ucheb. zav.; mat. no. 2:106-117 '58.
(MIRA 11:5)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.
(Series)

Zmorovich KR.

TETEL'BAUM, S.I.; ZMOROVICH, V.A. [Zmorovych, V.A.]

Possibility of improving the clearness of images produced by
optical instruments [with summary in English]. Dop. AN URSS^{ca}
no.4:323-327 '57. (MIRA 11:3)

1.Chlen-korrespondent AN URSS (Tetel'baum). 2. Institut elektro-
tekhniki AN URSS i Kiivs'kiy politekhnichniy institut.
(Optical instruments)

ZMOROVICH, V.A.

21-4-1/24

AUTHORS: Tetel'baum, S.I., Corresponding Member of the Ukrainian Academy of Sciences and Zmorovych, V.A.

TITLE: On the Possibility of Improving the Clearness of Images Produced by Optical Instruments (Pro mozhyvist' polipshennya chitkosti zobrazhen', utvoryuvanykh optychnymy instrumentamy)

PERIODICAL: Dopovidi Akademii Nauk Ukraini'koi RSR, 1957, #4, pp 323-327 (USSR)

ABSTRACT: The clearness of images is essentially restricted by the diffraction properties of an optical system. It is possible to improve this clearness, if characteristics of the optical devices used are assumed to be known.

The article describes a method of such an improvement proposed by Tetel'baum and gives a proof of the uniqueness of the solution deduced by Zmorovich.

The method consists in the solution of an integral equation in n-dimensional space which looks as follows:

$$\tilde{f}(k, \nu, p) = \int_{(R)} \int \int \int F(\ell, \sigma, q) \varphi(k, \nu, p, \ell, \sigma, q) d\ell, d\sigma, dq.$$

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TITLE:

21-4-1/24
On the Possibility of Improving the Clearness of Images Produced by Optical Instruments (Pro mozhlivist' polipshennya chitkosti zobrazen', utvoryuvanykh optychnymy instrumentamy)

where \bar{F} is the known function of coordinates k , frequency and other parameters p . This function corresponds to the less clear image of an object and it is found from experimental data (for instance, by the photometry or densitometry of photographs).

The function F which represent an investigated object more clearly is being sought for. The kernel of equation φ characterizes diffractive and other properties of the apparatus used, and of the observational conditions.

This method can be applied also to ultrasonic devices, radio-technical tools with directed antennas, spectroanalyzers, etc.

It is expected that the method proposed will make it possible to improve the clearness of images by several times.

On order to find the function F , it is expedient to use an algorithm to be applied in modern high-speed electronic computers or special integrators.

No references are given.

Card 2/3

TITLE:

21-4-1/14
On the Possibility of Improving the Clearness of Images Produced
by Optical Instruments (Pro mozhyvist' polipshennya chitkosti
zobrazhen', utvoryuvanykh optychnymy instrumentamy)

INSTITUTION: Institute of Electrotechnics of the Ukrainian Academy of Sciences,
Kyiv Polytechnic Institute

PRESENTED BY:

SUBMITTED: 4 December 1956

AVAILABLE: At the Library of Congress

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TITLE: On Some Questions of the Convergence Theory of Series With Positive Terms (O nekotorykh voprosakh teorii skhodimosti znakopolozhitel'nykh ryadov)

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ABSTRACT: The author explicitly deals with the older Russian papers of Yermakov [Ref 6-9], Bugayev [Ref 1,2] and Bukreyev [Ref 3-5] concerning the convergence of series. The principal results consist in the proof of the necessity of the convergence condition of Yermakov and in the proof that a convergence criterion of Bugayev is nothing but a special case of a result of Schlömilch [Ref 13].

Let the function $f(x)$ be unique, positive and continuous on $[1, +\infty)$; the integral

$\int_1^{\infty} f(x)dx$ and the series $\sum_{k=1}^{\infty} f(k)$ are

assumed to converge or diverge simultaneously.

Let $\theta(x) \in E$ denote that there exists an $a > 0$, so that $\theta(x)$

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is continuously differentiable on $[a, +\infty]$, $\theta'(x) > 0$, $\theta(x) > x$.
Let a property A be called almost immediately satisfied on
 $(a, +\infty)$, if it is satisfied on $[b, +\infty]$, $b > a$.
With these denotations the above mentioned completion of the
theorem of Yermakov [Ref 6] reads as follows:
Theorem: For the convergence (Divergence) of the series

$$\sum_{k=1}^{\infty} f(k)$$

it is necessary and sufficient that there exists a $\theta(x) \in E$
and an α , $0 < \alpha < 1$, (an $A > 1$), so that on $[1, +\infty]$

$$\begin{aligned} f(\theta(x))\theta'(x) &\leq \alpha f(x) \\ (f(\theta(x))\theta'(x) &\geq A f(x)) \end{aligned}$$

is satisfied almost immediately.

Altogether the paper contains 7 definitions, 7 lemmata and
10 theorems which in most cases are slight modifications of
well-known results. The last two sections have a somewhat po-
lemic character and deal with the investigation of Ostrovski
[Ref 14] published some years ago.

There are 14 references, 11 of which are Soviet, 2 German, and

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